

REMARKS

Claims 1-66 are pending in the present application. The Examiner has objected to the drawings and has rejected claims 1-66.

Claims 1-66 stand rejected under 35 U.S.C. § 103(a) as being obvious over U.S. Patent No. 6,236,847 B1 ("Stikvoort") in view of U.S. Patent No. 6,020,783 ("Coppola"). Applicants respectfully traverse the rejection.

I. STIKVOORT DOES NOT DISCLOSE A NOTCH FILTER

Although Applicants will respectfully present arguments showing conclusively that Stikvoort and Coppola were improperly combined, Applicants would like to correct an egregious error by the Examiner which has appeared in the last two Office Actions (i.e., the Office Action mailed November 21, 2003 and the Office Action mailed May 24, 2004). In each of the above-identified Office Actions, the Examiner has alleged that Stikvoort discloses a notch filter. Nothing could be further from fact. Stikvoort discloses a filter arrangement characterized by a bandpass filter function. A bandpass filter is the opposite of a notch filter, which is a type of bandstop filter. Applicants respectfully submit that, in general, a bandpass filter is the opposite of a bandstop filter (e.g., a notch filter).

For support that Stikvoort describes a bandpass filter, Applicants respectfully draw the attention of the Examiner to line 10 of the Abstract of Stikvoort ("[i]n this way a band-pass transfer function is obtained"); col. 1, lines 59-60 of Stikvoort ("[b]y using these measures it becomes possible to obtain a receiver with an asymmetric band pass transfer function"); col. 2, line 1 of Stikvoort ("a band pass transfer function is obtained"); and col. 4, lines 19-20 ("[c]onsequently a bandpass characteristic is obtained").

Accordingly, Applicants respectfully submit that the Examiner withdraw arguments based on Stikvoort allegedly disclosing a notch filter. Stikvoort simply does not support such an allegation.

II. STIKVOORT AND COPPOLA WERE IMPROPERLY COMBINED

Applicants will respectfully demonstrate that Stikvoort and Coppola were improperly combined and that a *prima facie* case of obviousness has not been presented. First, Applicants

will show that the proposed modification of Stikvoort using Coppola as alleged by the Examiner must change the principle of operation of Stikvoort. Second, Applicants will show that the proposed modification of Stikvoort using Coppola as alleged by the Examiner must render Stikvoort unsatisfactory for its intended purpose. Third, Applicants will show that Stikvoort and Coppola teach away from their combination. Although sufficient alone, the combined arguments present significant reason for traversal of the obviousness rejection with respect to claims 1-66.

A. The Proposed Modification Cannot Change the Principle of Operation of a Reference

M.P.F.P. § 2143.01 states that “[i]f the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959).”

As the Examiner will now appreciate in view of the above discussions, Stikvoort does not disclose a notch filter as incorrectly alleged by the Examiner, but instead uses a first polyphase filter 16 and a second polyphase filter 19 to obtain a receiver 2 with an asymmetric bandpass transfer function. See, e.g., col. 1, lines 29-67; col. 2, lines 1-2; and FIG. 1 of Stikvoort. A bandpass filter allows only the desired frequency range to pass through the two polyphase filters 16, 20 before being demodulated by the demodulator 21. Thus, for example, a communications signal at a particular frequency within the desired frequency range would pass through the two polyphase filters 16, 20 before being demodulated by the demodulator 21.

On the other hand, Coppola discloses an RF notch filter. See, e.g., the title of Coppola (“RF Notch Filter Having Multiple Notch and Variable Notch Frequency Characteristics”). The Examiner alleges that the teachings of Coppola can be used to modify the invention of Stikvoort to produce a notch filter. However, the Examiner has failed to consider that Stikvoort needs a bandpass transfer function to operate as described in Stikvoort. If the bandpass filter of Stikvoort is allowed to be changed into a notch filter (recalling that a notch filter is a type of bandstop filter), then clearly the receiver 2 of Stikvoort, which relies upon an asymmetric bandpass transfer function, would inherently and undeniably change the principle of operation of Stikvoort.

Applicants respectfully submit that, according to M.P.E.P. § 2143.01, such a change in the principle of operation of Stikvoort is not allowed and, according to M.P.E.P. § 2143.01, the teachings of Stikvoort and Coppola are insufficient to render the claims *prima facie* obvious.

**B. The Proposed Modification Cannot Render
the Prior Art Unsatisfactory for its Intended Purpose**

M.P.E.P. § 2143.01 states that “[i]f proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. In re Gordon, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984)”.

As should be clear by now, Stikvoort describes a receiver 2 using two polyphase filters 16, 19 to produce an asymmetric bandpass filter function. Stikvoort's intended purpose is to receive input signals by a receiver 2, down convert and bandpass filter the signals using frequency converters 5, 13 and polyphase filters 16, 19 before demodulating the baseband signals at the demodulator 21.

On the other hand, the Examiner has alleged that, by modifying the receiver 2 of Stikvoort with the teachings of Coppola, a notch filter may be produced. Of course, as discussed above, Stikvoort will not operate without its bandpass filter to filter out a particular frequency range in which, for example, communication signals may reside. If the Examiner is allowed to change the bandpass filter of Stikvoort into a notch filter (which is the opposite of a bandpass filter), then Stikvoort will not longer be able to operate as a receiver of communication signals. Instead of passing the relevant frequency range containing the communication signals, the notch filter would simply stop (i.e., bandstop) the frequency range containing the relevant communications signals. Since the relevant communications signals never reach the demodulator 21, Stikvoort would not be able to function as a receiver in a communications system -- which is its intended purpose.

Applicants respectfully submit that, according to M.P.E.P. § 2143.01, modifying Stikvoort thereby rendering Stikvoort unsatisfactory for its intended purpose is not allowed and, according to M.P.E.P. § 2143.01, there is no suggestion or motivation to make the proposed modification as alleged by the Examiner.

**C. References Cannot Be Combined Where
Reference Teaches Away from Their Combination**

M.P.E.P. § 2145(X)(D)(2) states that “[i]t is improper to combine references where the references teach away from their combination. *In re Grasselli*, 713 F.2d 731, 743, 218 USPQ 769, 779 (Fed. Cir. 1983)”.

Applicants respectfully submit that, since Stikvoort teaches an asymmetric bandpass filter function and Coppola teaches an RF notch filter, Stikvoort and Coppola teach away from their combination. In other words, if Stikvoort teaches a bandpass filter, then Coppola teaches away by teaching a bandstop filter (e.g., a notch filter).

Coppola teaches using an RF filter (i.e., an RF notch filter). On the other hand, Stikvoort teaches using polyphase filters. “Polyphase filters can make use of multiple phase shifted input signals (to be provided by the frequency conversion means) to produce asymmetric transfer functions enabling suppression of signals at the image frequency **without requiring an RF filter.**” Col. 1, lines 35-40 of Stikvoort (emphasis added). So according to Stikvoort, polyphase filters are used *instead* of RF filters to produce asymmetric bandpass transfer functions which are more effective at filtering image signals than RF filters. RF filters are further disparaged in the prior art section of Stikvoort as being “quite expensive”. In view of these disadvantages of RF filters as described in Stikvoort, Stikvoort states that “[t]he object of the present invention is to provide a receiver in which beside the image rejection also the adjacent channel selectivity is realized in a very cost effective way.” Thus, the very object of the invention of Stikvoort teaches away from using the RF filters of Coppola.

Coppola teaches away from passing a signal through a series of filters. In disparaging a prior art arrangement, Coppola states that “an incoming spectra passes through each of these notch filters with each notch filter attenuating its corresponding frequency spectrum. However, the desired signals in the spectra also degrade as they pass through the successive notch filters”. Col. 1, lines 25-30 of Coppola. Coppola’s solution is to place the notch filters in parallel. See, e.g., parallel notch filter paths 14, 20, 24 of FIG. 1 of Coppola. On the other hand, Stikvoort teaches away from Coppola by making the signal pass through a series of polyphase filters 16, 19. According to Coppola, the signal in Stikvoort is degraded as it passes through successive polyphase filters. Thus, Stikvoort teaches away from the very improvement trumpeted by Coppola.

Applicants respectfully submit that, according to M.P.E.P. § 2145(X)(D)(2), the combination of Stikvoort and Coppola is improper since Stikvoort and Coppola teach away from each other.

D. Conclusion

For at least the above reasons, Applicants respectfully submit that an obviousness rejection based on the combination of Stikvoort and Coppola cannot be maintained. It is therefore respectfully requested that the rejection under 35 U.S.C. § 103(a) be withdrawn with respect to claims 1-66.

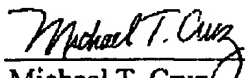
III. CONCLUSION

In view of at least the foregoing, it is respectfully submitted that the pending claims 1-66 are in condition for allowance. Should anything remain in order to place the present application in condition for allowance, the Examiner is kindly invited to contact the undersigned at the below-listed telephone number.

Please charge any required fees not paid herewith or credit any overpayment to the Deposit Account of McAndrews, Held & Malloy, Ltd., Account No. 13-0017.

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Respectfully submitted,



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